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Epidemiology of Trauma and Posttraumatic Stress Disorder in Mexico

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Prevalence rates of trauma and posttraumatic stress disorder (PTSD) were estimated from a probability sample of 2,509 adults from 4 cities in Mexico. PTSD was assessed according to *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994) criteria using the Composite International Diagnostic Interview (CIDI; WHO, 1997). Lifetime prevalence of exposure and PTSD were 76% and 11.2%, respectively. Risk for PTSD was highest in Oaxaca (the poorest city), persons of lower socioeconomic status, and women. Conditional risk for PTSD was highest following sexual violence, but nonsexual violence and traumatic bereavement had greater overall impact because of their frequency. Of lifetime cases, 62% became chronic; only 42% received medical or professional care. The research demonstrates the importance of expanding the epidemiologic research base on trauma to include developing countries around the world.

Knowledge regarding the prevalence of trauma and posttraumatic stress disorder (PTSD) is now extensive because of data provided by the National Comorbidity Survey (NCS; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), the Detroit Area Survey (DAS; Breslau, Kessler, Chilcoat, et al., 1998), the National Women's Study (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993), and other large-scale epidemiologic investigations in the United States (e.g., Breslau, Davis, Andreski, & Peterson, 1991; Norris, 1992), Canada (Stein, Walker, Hazen, & Forde, 1997), and Australia (Creamer, Burgess, & McFarlane, 2001). Despite variations in sampling strategy, data collection modality, and assessment technique, these studies have yielded several indisputable (or at least highly agreed on) facts. The first of these is that exposure to trauma is very common. U.S. estimates vary from 55% to 90% depending on the study's range of qualifying events, but each of these studies demonstrated that most people experience one or more potentially traumatic events over the course of their lives. The second clear conclusion is that the lifetime prevalence of PTSD is far from trivial (approximately 8% in the NCS); this is true even though only a minority of exposed persons fully meet PTSD diagnostic criteria. The third point of high agreement is that the likelihood of this disorder varies across specific events, being higher following interpersonal violence, especially sexual violence, than following natural disasters or other forms of nonintentional trauma. The fourth undisputed fact is that gender differences are pervasive. Whereas men are exposed more often than women are to many forms of trauma, such as physical assault, combat, and life-threatening accidents, women are more likely than men are (typically twice as likely) to develop PTSD. Kessler et al. (1995) reported lifetime rates of 10% for women and 5% for men (20% and 8% among exposed women and men, respectively). Women are also more likely to develop chronic forms of the disorder (Breslau, Kessler, Chilcoat, et al., 1998). Gender differences are observable but sometimes less extreme in rates of current or past-year PTSD (Creamer et al., 2001; Stein et al., 1997).

Despite the quality of the work that has been conducted in recent years, our understanding of the epidemiology of trauma is not without its limitations. Prominent among these is the lack of international representativeness in the research base as a whole. Few epidemiologic data on trauma or PTSD in general populations have emerged from poor or economically developing countries (de Girolamo & McFarlane, 1996), although some recent research has increased understanding of trauma in poor, war-torn countries (DeJong et al., 2001). We undertook this study of trauma in Mexico not because we expected the results to be dramatically different from those that have emerged elsewhere in North Amer-

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ica but rather out of a belief that it is important to establish a research base that is more cross-culturally valid. Expecting largely to replicate previous findings, we predicted that (a) the prevalence of exposure to trauma would be quite high, (b) the prevalence of PTSD would be much lower than the prevalence of exposure would be but nonetheless substantial, (c) survivors of interpersonal violence would be at greater risk for PTSD than would other trauma survivors, and (d) women would be at greater risk than men would for lifetime and chronic PTSD.

For various reasons, however, we anticipated that the frequency and impact of trauma would be even more pronounced in the current study than in previous ones. In poor countries, work is often physically demanding and dangerous; housing is often inferior and crowded; families may face extreme hardships simply to subsist; and power differentials between rich and poor, adults and children, and men and women are often enhanced. These harsh realities made it reasonable to hypothesize that a large percentage of the Mexican population would have experienced life-threatening accidents, traumatic bereavements, and interpersonal violence. Because resilience to trauma may be influenced by external resources, such as access to medical and professional care, it was likewise reasonable to hypothesize that rates of PTSD would be higher in Mexico than in the United States or Canada. Moreover, we hypothesized that these rates would vary within Mexico according to the area's extent of economic development and resources (in our study, the city of Oaxaca is particularly poor) and the individual's socioeconomic status (SES), as indicated by education and material wealth.

Gender differences have been observed in epidemiologic studies far more often than they have been explained (see Norris, Foster, & Weisshaar, 2002, for a comprehensive review and discussion of these results). A variety of theoretical explanations have been posited, however (Saxe & Wolfe, 1999). One possibility stems from a greater physiological reactivity in women that has been demonstrated in laboratory studies (e.g., Shalev, Orr, & Pitman, 1993). A second possibility emphasizes the different types of traumatic events experienced by women and men as well as the influence of interpersonal violence in women's lives. As reasonable as an explanation based on type of trauma appears, previous research has not supported this idea. The greater risk associated with female gender held in regression analyses that controlled for type of trauma (Breslau, Kessler, Chilcoat, et al., 1998) and previous trauma (Breslau, Chilcoat, Kessler, & Davis, 1999). Kessler et al. (1995) found women to be at greater risk for PTSD than men are for all "most upsetting events" other than sexual assault, for which men's and women's conditional risk rates were equivalent. Stein et al. (1997) reported similar results. A third possibility, proposed by Wolfe and Kimerling (1997), is that routine stressors of poverty, discrimination, and oppression reduce women's capacities to cope with traumatic stressors. A fourth possibility emphasizes "the meanings of being a male and female in the social environment in which an individual grows up and lives" (Saxe & Wolfe, 1999, p. 171). Saxe and Wolfe hypothesized that cognitions related to trauma, such as helplessness, are more dissonant with men's self-concepts than with women's. Thus gender role socialization may cause men to suppress symptom experiences and women to disclose them (see also Wolfe & Kimerling, 1997).

Whereas biological and experiential causes of gender differences in outcomes may apply equally to Mexican and other North American women, socioeconomic and sociocultural explanations may be especially relevant for Mexican women because so many live in poverty, and all live in the context of a culture that fosters traditional views of men and women (Davenport & Yurich, 1991; Hofstede, 1980; Hondagneu-Sotelo, 1994; Peñalosa, 1968; Selby et al., 1994; Solis Pontón, 1997; Vazquez-Nuttal, Romero-Garcia, & DeLeon, 1987). Some previous research supports our assumptions that gender differences will be quite pronounced in Mexico. In a study of injuries treated in Mexico City emergency rooms, men were three times more likely to be exposed to violent acts than were women (Hijar, Tapia, Ascencio, & Chávez, 1992). There were also significant gender differences in where the violence occurred, with women experiencing intentional injury more often in the home, whereas men were most often injured in the street or in public places. Moreover, in a comparative study of the effects of Hurricanes Andrew and Paulina, Norris, Perilla, Ibañez, and Murphy (2001) found gender differences in vulnerability to disaster-related PTSD to be far greater in Mexico than in the United States. In the current study, we also explore the joint effects of gender and SES because of the relevance of both cultural and economic factors to Mexican women.

In summary, the primary purpose of this study was to produce normative and descriptive data regarding trauma exposure and PTSD for four cities in Mexico that were selected to provide regional and economic diversity. A secondary purpose was to explore the influence of city, SES, and gender on the frequency and impact of trauma in Mexico. Previous psychiatric epidemiologic studies have described Mexicans' risk for major depression disorder, substance use disorders, and other anxiety disorders (Caraveo-Anduaga, Colmenares, & Saldívar, 1999; Vega et al., 1998). To our knowledge, however, our study is the first to document the epidemiology of trauma in Mexico or, for that matter, anywhere in the Americas outside of the United States and Canada.

Method

Sampling and Interviewing Procedures

A multistage probability sampling design was used to draw samples of adults representative of Oaxaca, Guadalajara, Hermosillo, and Mérida. Oaxaca (population 500,000) is the capital of the state by the same name. Located in the southern mountains of Mexico, Oaxaca has retained a strong flavor of traditional indigenous and Mexican culture. With an economy based in government service and tourism, it is among the poorest cities in Mexico (Murphy & Stepick, 1991). Guadalajara (population 1,646,000, 3 million in the metropolitan area) is Mexico's second largest city. It is an important commercial center located in a rich farming region in the southwest. It is a modern, industrial city and, as such, represents the "Mexico of the future," where industrial employment is the primary source of income for the majority of the population (Barba Solano & Pozos Ponce, 2000; De la Pena & Escobar Latapi, 1986; Escobar Latapi & de la Rocha, 1995). Hermosillo (population 610,000) is the capital of the state of Sonora in northwestern Mexico. The city's close proximity to the United States (4 hours by car from Tucson) gives it a strong North American flavor. The economy of the region is based on government services, commercial agriculture, and industrial manufacturing for the United States market (Camou, Guadarrama & Ramírez, 1988; Ramírez, 1988). Mérida (population 705,000) is located in the northwestern quadrant of the Yucatan Peninsula. The city was founded in 1528 and in the 19th century was a center of hemp production (Macazaga Ordoño, 1979). Today it serves as the governmental and commercial center for the Yucatan peninsula.

By using the Mexican equivalent of census data, we randomly selected 10% of the total number of census tracts in each city (e.g., if there were 210 census tracts, 21 were randomly selected). Within each census tract, households were sampled proportionate to the population size within that tract; that is, two times as many households would be sampled from a census tract that had 10,000 households than from one that had 5,000 households. We began data collection in Oaxaca, where we randomly selected 24 areas for enumeration. From these areas, we randomly selected 903 households. Of these household units, 727 were eligible for the study. Noneligible units were vacant lots or businesses. Of the eligible households, 700 were successfully contacted, and the male or female head was asked if the household would participate in the study. Of these households, 584 agreed to complete an initial sociodemographic interview about household members. One adult resident was then randomly selected from each of these 584 participating households and asked to participate in an in-depth psychological interview. Of these adults, 576 completed the psychological interview, for a final response rate of 79% of those households assessed as eligible. The procedures were the same in the other three cities, yielding *ns* and response rates of 713 and 82% in Guadalajara, 618 and 76% in Hermosillo, and 602 and 70% in Mérida. The Oaxaca and Guadalajara data were collected in 1999, the Hermosillo and Mérida data in 2001.

Interviews were completed by trained, local interviewers in the respondent's home. Training consisted of showing the interviewers how to solicit participation in the study, how to protect participants' rights, how to complete the standardized questionnaire, how to ask personal questions respectfully, and how to be sensitive to respondent distress. The demographic interviews lasted about 1 hour, and psychological interviews lasted an average of 2 hours. Demographic and psychological interviews were typically completed on separate days and most were audiotaped. Fieldwork managers checked all interviews for accuracy of selection procedures, completeness, and quality. In addition, they revisited each participating household to deliver a letter of thanks and to ask the respondent for his or her impressions of the interview and interviewer.

The total sample was composed of 1,602 women and 907 men who ranged in age from 18 to 92. Mean age was 39.3 (SD = 16.1). Approximately 83% of the participants were aged 55 or under (55 was the maximum eligible age for the NCS) and 69% were aged 45 or under (45 was the maximum eligible age for the DAS). These percentages did not differ by gender. For comparative purposes we present certain key findings for age-limited subsamples selected to match the eligibility requirements of the NCS or DAS.

The sample averaged 9 years of education. For some analyses, the sample was divided into 5 educational groups: <6 years, n = 405; 6–8 years, n = 573; 9–11 years, n = 638; 12–15 years, n = 514; and 16+ years, n = 377. As a second indicator of SES, the sample was sometimes divided into quartiles according to scores on a 25-item index that assessed the material goods present in the household, such as showers, appliances, beds, and vehicles.

The gender distribution was approximately the same in each city. At 64%, women are overrepresented in the sample with psychological interviews, but the reason for this is not clear. According to the most recent Mexican census data, 55% of adult residents are women (INEGI, 2001). This percentage is substantially above 50% because a large number of Mexican men reside in the United States. The gender distribution of our sociodemographic sample, composed of all members of all households that participated in both phases of the survey (psychological-individual as well as demographic-household), matches the census data exactly. This finding suggests that the bias did not occur at the point of household selection or as a result of differential response rates and, therefore, that it must have occurred at the point of selection for the psychological interview. This selection was made at the end of the demographic interview, well after the informant had provided the birthdays, birth years, and present residence status of each household member. Fieldwork supervisors reviewed audiotapes of each interview and verified that the interviewer selected the appropriate adult (the one with the most recent birthday) for the psychological interview regardless of who gave the sociodemographic interview or who was home at the time of that initial interview. Of people who lived with no other adults in the household, 72% were women; thus women had a higher probability of selection. However, weighting the data by the number of adults in the household changed the gender distribution of the sample only marginally (from 63.8% to 62.3% women).

Because information was collected about all household members, it was possible to compare selected men and women to the larger "populations" from which they were chosen on several variables. Selected women did not differ significantly from the larger population of women in education or pay. Compared with the population value, selected women worked an average of 2.3 more hours per week, $t(1579) = 2.38$, and were older by an average of 1 year, $t(1598) = 2.56$. At .06 each, the effect sizes (ESs) of these differences were very small. Selected men did not differ from the larger population of men in hours worked per week. They were better educated by an average of 0.4 years, $t(903) = 2.77$, ES = .09; they were better paid by an average of 306 pesos for a 2-week period (approximately 15 U.S. dollars per week), $t(828) = 3.25$, ES = .11; and they were older by an average of 2 years, $t(905) = 3.60$, ES = .12. Thus our female sample appears to be quite representative of the larger population of women, but our male sample underrepresents the experiences of younger, lower income, less-educated men. The magnitude of this bias appears to be relatively small, however.

To derive an unbiased population estimate, weights were applied to correct the gender distribution to a 55:45 ratio of women to men. These weights were .861 for women, 1.245 for men.

Measures

Both exposure to trauma and PTSD were measured by using Module K of Version 2.1 of the Composite International Diagnostic Interview (CIDI) developed and translated into Spanish by the World Health Organization (WHO, 1997). The CIDI has been used widely in prior epidemiologic studies, although to our knowledge Module K for PTSD had not been used in Mexico previously.

For all persons who had experienced one or more events from the event section (A1), the CIDI assesses, in order, all *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–IV;* American Psychiatric Association, 1994) criteria for PTSD: A2 (subjective trauma in the form of terror, horror, or helplessness), B (5 intrusion symptoms, of which at least one must be present), C (7 avoidance or numbing symptoms, of which 3 must be present), D (5 arousal symptoms, of which 2 must be present), E (duration of symptoms of at least 1 month) and F (impairment in functioning). We modified the protocol slightly so that all symptom questions were asked of anyone who had experienced an event. (The typical approach is to skip out once a criterion is not met.) Because we included only three CIDI modules in the study, we did not believe that the additional 5–12 questions placed an undue burden on participants.

The CIDI is structured such that people who experience more than one type of event are asked the symptom questions only for the one event judged by them to have been the most stressful. This is a common approach and comparable to that used in the NCS, but it does constitute a shortcoming of the current study. When PTSD related to an event is assessed only among respondents who consider that event to have been their worst experience, estimates of conditional risk are overestimated (Breslau, Kessler, Chilcoat, et al., 1998). A preferred approach is to assess the impact of a randomly selected event as well as for the worst event, but this method is feasible only with the use of computer-assisted interviews during which the random choice can be generated by the computer. We experimented with using notebook computers in the field in our pilot work, but had to abandon their use due to their slow processing speed when dependent on batteries (many Mexican homes have no electricity) and the discomfort expressed by the indigenous interviewers and fieldwork staff. As will be

shown subsequently, our solution to this problem was to compute a range of estimates of conditional risk for all persons who experienced specific events, not only for those who described specific events as the worst. These rates have relative value although they are problematic as exact estimates. It should be noted that the "worst event" approach does not bias estimates of the total prevalence of exposure or PTSD.

To our knowledge, no studies have documented the clinical validity of the Spanish version of the CIDI PTSD module. However, Breslau, Kessler, and Peterson (1998) found good agreement between the English version of the same module and clinicians' evaluations (sensitivity = 95%; specificity = 71%; κ = .63). To examine construct validity of the CIDI, we administered to a subset of our sample a second measure of symptoms (Revised Civilian Mississippi Scale for PTSD [RCMS]) and obtained a correlation between the two measures of .80. This high agreement is meaningful because both the linguistic equivalence (Norris & Perilla, 1996) and conceptual equivalence (Norris, Perilla, & Murphy, 2001) have been empirically established between English and Spanish versions of the RCMS.

As is recommended for investigations in non-Western or developing countries, we conducted a considerable amount of preliminary research on PTSD in Mexico before undertaking this epidemiologic study. In an initial qualitative study (Norris, Weisshaar, et al., 2001), survivors of various disasters in Mexico were asked to describe their emotional reactions in unstructured interviews. Of the 17 specific criterion symptoms, 14 were mentioned with little or no prompting by study participants. The participants also provided an abundance of expressions (e.g., remain affected, always live with the fear, ill from fright [*susto*], stayed more traumatized) that could not be classified as specific criterion symptoms but clearly implied that the concept of trauma, more globally defined, was a meaningful one. A subsequent quantitative, comparative study was conducted with samples of disaster victims from the United States (Hurricane Andrew, non-Hispanic participants only) and Mexico (Hurricane Paulina). A four-factor measurement model, specified a priori to represent the accepted multicriterion conceptualization of PTSD, fit the data of the U.S. and Mexican samples equally well. Moreover, symptoms followed a similar order when they were ranked on the basis of item means within each sample, yielding a Spearman rank-order correlation between the two sets of .69 (Norris, Perilla, & Murphy, 2001). Altogether, the evidence from these preliminary studies established that PTSD is relevant for, and measurable in, Mexican trauma survivors.

Results

Prevalence of Exposure

The weighted population estimate for lifetime exposure to a potentially traumatic event (*DSM–IV* Criterion A1 for PTSD) was 76%. The population estimate of exposure was 77% when adults over the age of 55 were excluded from the analysis, 78% when adults over the age of 45 were excluded. These slight differences are well within the range defined by sampling error.

Table 1 shows the lifetime frequencies of specific traumatic events. For the sample as a whole, the most prevalent events were traumatic bereavement (loss of a loved one due to homicide, suicide, or accident), witnessing someone injured or killed, life-threatening accident, and physical assault. Considered as a set rather than as specific forms, violence was experienced by 35% of the combined weighted sample.

Multiple trauma exposure was more common than not. Of those in the combined sample who experienced trauma, 30% had a single trauma, 24% had two, 19% had three, and 27% had four or more.

City, SES, and Sex Differences in the Prevalence of Exposure

Ranging from 74% in Mérida to 79% in Oaxaca, weighted estimates of lifetime exposure did not vary significantly across cities, $\chi^2(3, N = 2{,}509) = 5.26$, $p = .15$. There were selected differences between cities in the prevalence of specific events. Participants in Mérida, in the Yucatan, were more likely to report injury or property loss in a disaster (11%), $\chi^2(3, N = 2{,}509) = 15.49$, $p < .001$, and being affected by an event of a loved one (19%), $\chi^2(3, N = 2{,}509) = 5.25$, $p < .05$. Participants in Guadalajara, the largest city, were more likely to have witnessed someone being injured or killed (42%), $\chi^2(3, N = 2{,}509) = 19.99$, $p < .001$, or to have been threatened with a weapon (22%), $\chi^2(3, N = 2{,}509) = 28.20$, $p < .001$. Participants in Hermosillo, the northernmost city, were more likely to report traumatic bereavement (44%), $\chi^2(3, N = 2{,}509) = 18.18$, $p < .001$. What is most notable

Table 1
Lifetime Prevalence of Potentially Traumatic Events

Event	Women		Men		Combined weighted sample	
	%	*SE*	%	*SE*	%	*SE*
Traumatic bereavement	36.1	1.2	40.5[a]	1.6	38.1	1.0
Witnessing someone killed or injured	26.3	1.1	45.6[a]	1.7	35.0	1.0
Life-threatening accident	21.9	1.0	45.1[a]	1.7	32.3	0.9
Physical assault	13.5	0.9	27.8[a]	1.5	19.9	0.8
Threatened with weapon	8.3	0.7	28.3[a]	1.5	17.3	0.8
Sexual molestation	10.5	0.8	9.2	1.0	9.9	0.6
Injury or property loss in disaster	7.7	0.7	9.0	1.0	8.3	0.6
Injury or property loss in fire	5.9	0.6	6.2	0.8	6.0	0.5
Sexual assault	3.9[a]	0.5	1.1	0.3	2.7	0.3
Combat	1.1	0.3	3.2[a]	0.6	2.0	0.3
Torture or terrorism	0.3	0.1	1.1[a]	0.3	0.7	0.2
Other extremely stressful event	11.8	0.8	15.1[a]	1.2	13.3	0.7
Event of loved one	22.0	1.0	22.9	1.4	22.4	0.8

[a] Significantly higher percentage than counterpart, $p < .05$.

about this pattern, in light of the study's hypotheses, is that there were no specific events to which residents of Oaxaca were exposed disproportionately. The cities also differed in average number of traumas, $F(3, 2505) = 3.90$, $p < .01$, but the only significant post hoc test was between Mérida, $M = 1.8$, $SD = 1.8$, and Guadalajara, $M = 2.2$, $SD = 1.9$.

Overall prevalence of exposure increased slightly with education, $\chi^2(1, N = 2,505) = 4.43$, $p < .05$, ranging from 73% of the least educated group (<6 years) to 79% of the most educated group (16+ years). Consistent with this overall effect, positive linear effects of education emerged for exposure to accidents (range 26%–36%), $\chi^2(1, N = 2,505) = 9.10$, $p < .01$, threats with weapons (range 11%–20%), $\chi^2(1, N = 2,505) = 15.90$, $p < .001$, other extremely stressful events (range 6%–20%), $\chi^2(1, N = 2,505) = 49.06$, $p < .001$, and being affected by a loved one's trauma (range 18%–25%), $\chi^2(1, N = 2,505) = 10.39$, $p < .001$. However, an inverse linear effect emerged for exposure to combat (range 2.5%–0.5%), $\chi^2(1, N = 2,505) = 5.21$, $p < .05$, fire (range 9%–5%), $\chi^2(1, N = 2,505) = 6.08$, $p < .05$, sexual assault (range 4%–1%), $\chi^2(1, N = 2,505) = 4.48$, $p < .05$, and physical assault (range 21%–16%), $\chi^2(1, N = 2,505) = 8.03$, $p < .01$. Education had no effect on the number of lifetime traumas.

There were fewer significant effects when material wealth quartiles were used as the indicator of SES, but the overall pattern of findings was similar. Wealth had no effect on overall prevalence of exposure. Exposure to accidents, threats by weapons, other extremely stressful events, and events of loved ones increased with wealth, whereas exposure to sexual assault and physical assault decreased with wealth. Wealth did not predict total number of traumas experienced over the lifetime.

Altogether, 71% of women and 83% of men were exposed to a potentially traumatic event at some point in their lives. This gender difference was statistically significant, $\chi^2(1, N = 2,509) = 46.17$, $p < .001$. Men and women did not differ, however, in exposure to events perceived as traumatic, that is, as involving terror or helplessness (see Table 2). In accord with previous research conducted in the United States, men were more likely than were women to report traumatic bereavement, witnessing someone killed or injured, life-threatening accident, physical assault, threatened with a weapon (this difference was particularly large), combat, torture–terrorism, and other extremely stressful events (see Table 1). Women were more likely than men were to experience sexual assault. A striking 45% of men had experienced at least one form of violence, compared with 27% of women, $\chi^2(1, N = 2,509) = 92.78$, $p < .001$. In a multiple regression analysis, sex had a significant effect on number of traumas, $\beta = -.22$, $t(2,502) = -11.27$, $p < .001$, with education controlled. Men ($M = 2.6$, $SD = 2.0$) averaged more events than did women ($M = 1.7$, $SD = 1.7$), $t(2,507) = 11.36$, $p < .001$. Of men who experienced trauma, only 22% had only a single trauma, 23% had two, 20% had three, and 34% had four or more. In contrast, 37% of exposed women had a single trauma, 25% had two, 18% had three, and 20% had four or more. No interaction between gender and education or wealth was apparent in predicting number of traumas.

Prevalence of PTSD

Table 2 shows sample proportions that met *DSM–IV* criteria for PTSD as each new criterion was added to the computation. A1 is the event criterion, as previously described. Criterion A2 (subjective trauma) reduced the proportions that met the exposure criteria substantially, from 76% to 59% in the combined weighted sample. Of the three symptom criteria, B (intrusion) was most prevalent and C (avoidance–numbing) least prevalent; of adults who met Criterion A2, 78% met B, 38% met C, and 60% met D. Considered together, the symptom criteria were met by 19% of the total combined sample, 25% of those who reported an A1 event, and 32% of those who met Criterion A2. To meet Criterion E, symptoms must be present for at least 1 month. Altogether, 13% of the combined weighted sample met this criterion in addition to Criteria A–D. This rate is the most comparable methodologically to *DSM–III–R* (American Psychiatric Association, 1987) rates and accordingly to the NCS results (8%) for the United States. The same estimate of 13% emerged in our data when participants over the age of 55 were excluded from the analysis.

The final *DSM–IV* criterion is F (impaired functioning). As shown in Table 2, after taking this criterion into account, 11% of the combined sample met all criteria for lifetime PTSD. The rate was almost identical when adults over age 55 were excluded (11.1%) and when adults over age 45 were excluded (10.8%).

Because Criterion A2 was new with *DSM–IV*, and there were relatively few published data regarding its impact when our data were collected, we assessed the remaining criteria regardless of whether questions regarding terror, horror, or helplessness were answered affirmatively. Only 11 people (0.4% of the total com-

Table 2
Lifetime Prevalence of PTSD by Criteria

	Women					Men					Combined weighted sample				
Criteria	*n*	% of total	*SE*	% of A1	*SE*	*n*	% of total	*SE*	% of A1	*SE*	*n*	% of total	*SE*	% of A1	*SE*
A1	1,137	71.0	1.1	100.0		752	82.9[a]	1.3	100.0		1,915	76.3	0.8	100.0	
A1–A2	914	57.1	1.2	80.4[a]	1.2	548	60.4	1.6	72.9	1.6	1,469	58.6	1.0	76.7	1.0
A–D	369	23.0[a]	1.1	32.5[a]	1.4	123	13.6	1.1	16.4	1.4	471	18.8	0.7	24.6	1.0
A–E	279	17.4[a]	0.9	24.5[a]	1.3	76	8.4	0.9	10.1	1.1	335	13.3	0.7	17.5	0.9
A–F (all)	233	14.5[a]	0.9	20.5[a]	1.2	65	7.2	0.9	8.6	1.0	282	11.2	0.6	14.7	0.8

Note. *DSM–IV* PTSD criteria are as follows: A1 is for event, A2 for subjective trauma, B for intrusion, C for avoidance/numbing, D for arousal, E for duration, and F for functional impairment. PTSD = posttraumatic stress disorder.
[a] Significantly higher percentage than counterpart, $p < .05$.

bined weighted sample) met all other criteria but did not meet A2. Thus this new criterion had little influence on the overall estimate of PTSD in this population (11.6% without, 11.2% with). These results are in line with those reported by Breslau and Kessler (2001).

City, SES, and Gender Differences in Prevalence of PTSD

Rates of PTSD varied across cities, with Oaxacans far more likely to exhibit the disorder (17%) than were residents of the other cities (9%–10%), $\chi^2(3, N = 2{,}509) = 21.40$, $p < .001$. Rates of PTSD increased linearly as educational level decreased, ranging from only 6% of the college-educated respondents to 19% of respondents with less than 6 years of education, $\chi^2(1, N = 2{,}505) = 41.10$, $p < .001$. Likewise, rates of PTSD increased as wealth decreased, ranging from 9% in the highest quartile to 17% in the lowest quartile, $\chi^2(1, N = 2{,}505) = 15.69$, $p < .001$.

With rates of 15% and 7%, respectively, women were more than twice as likely as men were to meet all criteria, $\chi^2(1, N = 2{,}509) = 32.27$, $p < .001$. In a logistic regression analysis, the effects on PTSD of gender and education were independent; that is, each effect remained significant with the other controlled: for gender, $B = .679$, $SE\ B = .143$, $p < .001$; for education, $B = -.284$, $SE\ B = .054$, $p < .001$. When wealth was substituted for education in the equation, the results were comparable. There was no interaction between gender and either education or wealth in predicting lifetime PTSD. However, the two additive effects combined to create extremely high rates of PTSD among the least educated (22%) and the poorest (20%) women in this sample.

Prevalence of Chronic PTSD

In the combined weighted sample, 62% of all lifetime cases or 7% of the total sample met criteria for chronic PTSD. Chronic PTSD was defined as meeting all *DSM–IV* criteria and having the symptoms for 1 year or longer.

City, SES, and Gender Differences in the Prevalence of Chronic PTSD

The percentage of participants who suffered from chronic PTSD was twice as high in Oaxaca (12%) as in the other cities (5%–6%), $\chi^2(3, N = 2{,}509) = 23.43$, $p < .001$. The prevalence of chronic PTSD decreased as education increased (range 11%–4%), $\chi^2(1, N = 2{,}505) = 16.94$, $p < .001$, and as wealth increased (range 11%–5%), $\chi^2(1, N = 2{,}505) = 16.89$, $p < .001$.

Expressed in terms of proportion of cases (65% of female cases, 52% of male cases), the gender difference in chronic PTSD was not significant, $\chi^2(1, N = 298) = 3.55$, $p = .059$. Expressed in terms of population proportions (10% of women, 4% of men), the gender difference was substantial, $\chi^2(1, N = 2{,}509) = 30.70$, $p < .001$. In a logistic regression analysis predicting chronic PTSD, significant effects emerged for both gender, $B = .915$, $SE\ B = .183$, $p < .001$, and education, $B = -.217$, $SE\ B = .064$, $p < .001$, but the strength of their interactive effect was not significant, $B = -.241$, $SE\ B = .143$, $p = .09$. When wealth was substituted for education in the analyses, the main effects were comparable, and the interaction was marginally stronger ($p = .06$). Among women, the effects of education and wealth were quite strong: 15% of the least educated–poorest groups had chronic PTSD over the course of their lives, compared with only 5%–6% of the college educated–wealthiest groups. Men's rates did not vary with education or wealth.

Conditional Risk for PTSD

The overall conditional risk rate (rate of PTSD given any exposure) was 15% for the combined weighted sample. Nine percent of exposed persons developed chronic PTSD.

Table 3 presents conditional risk rates associated with specific types of events. First, we show the percentage of the total n experiencing that event (or category) who met criteria for PTSD specifically linked to that event (or category); second, we show the percentage of that n who met criteria for PTSD for some other event; and third, we show the total percentage of that n who met criteria for PTSD for any reason. The first and third values provide a range within which the true conditional risk is certain to fall. In Table 3, the events are presented in order of the estimated percentage of the total Mexican population that has had PTSD linked specifically to that event or category of events. The overall importance of an event in a population is a function of both frequency and impact. Some events that were quite common seldom engendered PTSD. The most notable example of this was witnessing, which occurred to 35% of the population but produced PTSD in only 1% of those who experienced it. In contrast, with a lifetime frequency of 38% in the population, traumatic bereavement (loss of a loved one due to homicide, suicide, or accident) was the most prevalent event, and it engendered PTSD in a substantial proportion of survivors. Thus bereavement-related PTSD was a prevalent form of the disorder. We can estimate that out of every 1,000 Mexicans, 34 have experienced PTSD specifically related to this event. Sexual violence (assault or molestation) was by far the most pathogenic event, with 17% of all those who experienced this form of trauma meeting PTSD criteria for sexual violence and 34% of all those who experienced this form of trauma meeting PTSD criteria for any reason. When sexual and nonsexual violence are considered together, 53 out of 1,000 Mexicans have had violence-related PTSD, which is also strikingly high.

Conditional risk for PTSD associated with the index trauma varied strongly and linearly according to the total lifetime number of traumatic events, $\chi^2(1, N = 1{,}915) = 49.72$, $p < .001$. Rates of PTSD were 7% among adults with a single trauma, 14%–15% among adults with two to three traumas (double that of the single-trauma rate), and 23% among adults with four or more traumas (triple that of the single-trauma rate). Forming a similar "dose-response" pattern, chronic PTSD associated with an index trauma likewise varied with lifetime number of traumas, $\chi^2(1, N = 1{,}915) = 40.16$, $p < .001$. Rates of chronic PTSD were 4% among adults with a single trauma, 8%–9% among adults with two to three traumas, and 15% among adults with four or more traumas.

City, SES, and Gender Differences in Conditional Risk for PTSD

Determined on the basis of A1, conditional risk rates varied across cities. Conditional prevalence of lifetime PTSD was much greater in Oaxaca (21%) than in the other cities (12%–15%), $\chi^2(3, N = 1{,}915) = 19.20$, $p < .001$, as was the conditional prevalence

Table 3
Lifetime Posttraumatic Stress Disorder (PTSD) by Worst Event

Event	Total *n* reporting category	% of *n* with PTSD linked to category	% of *n* with PTSD linked to another event	% of *n* with PTSD for any reason	Estimated % of population with PTSD due to category
		Women			
Traumatic bereavement	579	10.5	10.9	21.4	3.8
Nonsexual violence	321	13.1	19.4	32.5	2.6
Sexual assault–molestation	199	26.1	15.6	41.7	3.2
Event of loved one	353	7.6	17.9	25.3	1.7
Life-threatening accident	351	4.3	17.5	21.8	0.9
Other event	189	10.6	12.6	23.3	1.2
Witnessing	421	2.4	20.7	23.1	0.6
Fire or disaster	209	2.9	24.9	27.8	0.4
		Men			
Traumatic bereavement	367	2.7	7.4	10.1	1.1
Nonsexual violence	386	3.6	8.1	11.7	1.5
Sexual assault–molestation	89	2.2	18.0	20.2	0.2
Event of loved one	208	5.3	6.3	11.5	1.2
Life-threatening accident	409	3.7	6.9	10.6	1.7
Other event	137	7.3	8.8	16.1	1.1
Witnessing	414	0.5	10.0	10.4	0.2
Fire or disaster	129	0.8	10.8	11.6	0.1
		Combined weighted sample			
Traumatic bereavement	955	6.8	9.3	16.2	3.4
Nonsexual violence	757	7.1	12.2	19.3	2.8
Sexual assault–molestation	282	16.7	16.7	34.4	2.5
Event of loved one	563	6.6	12.5	18.9	1.9
Life-threatening accident	811	3.9	10.7	14.6	1.7
Other event	333	9.0	10.5	19.5	1.6
Witnessing	878	1.3	14.4	15.7	0.6
Fire or disaster	341	1.8	18.2	20.0	0.3

of chronic PTSD (15% vs. 6%–8%), $\chi^2(3, N = 1{,}915) = 21.77$, $p < .001$.

Conditional risk rates also varied strongly with education, ranging from only 7% of exposed persons with 16 or more years of education to 26% of exposed persons with less than 6 years of education, $\chi^2(1, N = 1{,}912) = 48.82$, $p < .001$. Similarly, conditional rates of PTSD ranged from 11% of exposed persons in the highest wealth quartile to 21% of persons in the lowest quartile, $\chi^2(1, N = 1{,}912) = 18.33$, $p < .001$. Conditional risk for chronic PTSD also increased as education decreased (5%–16%), $\chi^2(1, N = 1{,}912) = 20.29$, $p < .001$, and as wealth decreased (7%–15%), $\chi^2(1, N = 1{,}912) = 18.83$, $p < .001$.

As shown in Table 2, the gender difference was also significant statistically: 21% of exposed women, compared with only 9% of exposed men, developed PTSD. The difference in conditional rates of chronic PTSD was also significant: 13% women, 5% men, $\chi^2(1, N = 1{,}889) = 43.94$, $p < .001$. The effects of gender and education (or wealth) each remained strong, with the other controlled, in logistic regression analyses that were parallel to those described earlier except that the sample was limited to the participants who had experienced a potentially traumatic event. The additive effects of gender and SES yielded very high rates of conditional risk for PTSD for minimally educated (31%) and poor (28%) women.

Power for testing differences in conditional risk for PTSD given particular index events was quite limited. Our sample size was not adequate for testing joint effects of event type and city, education, or SES. For all events, the raw percentages of women meeting criteria were greater than the raw percentages of men meeting criteria (see Table 3). These differences reached conventional significance levels ($p < .05$) for nonsexual violence and traumatic bereavement and approached significance ($p < .10$) for sexual violence and witnessing. The data for male victims of sexual violence were quite interesting. A sizable number of men (89) were willing to acknowledge an experience of molestation or sexual assault, but only 2% of them met PTSD criteria specifically linked to the experience. However, an additional 18% of these men met PTSD for some other event, so that the overall rate of 20% PTSD in this group was the highest for any group of men.

The impact of multiple traumas was comparable across cities and SES groups but was marginally greater for women than for men, as shown by the effects of an interaction term in logistic regression analyses: For PTSD, $B = -.238$, $SE\ B = .145$, $p = 10$; for chronic PTSD, $B = -.363$, $SE\ B = .212$, $p = .09$. The joint effects of number of traumas and gender on lifetime PTSD prevalence are illustrated in Figure 1.

Prevalence of Treatment for PTSD

Of all those who met *DSM–IV* criteria for PTSD, 21% received care from a medical doctor only, 13% received care from another professional only, 8% received care from both, and 58% received

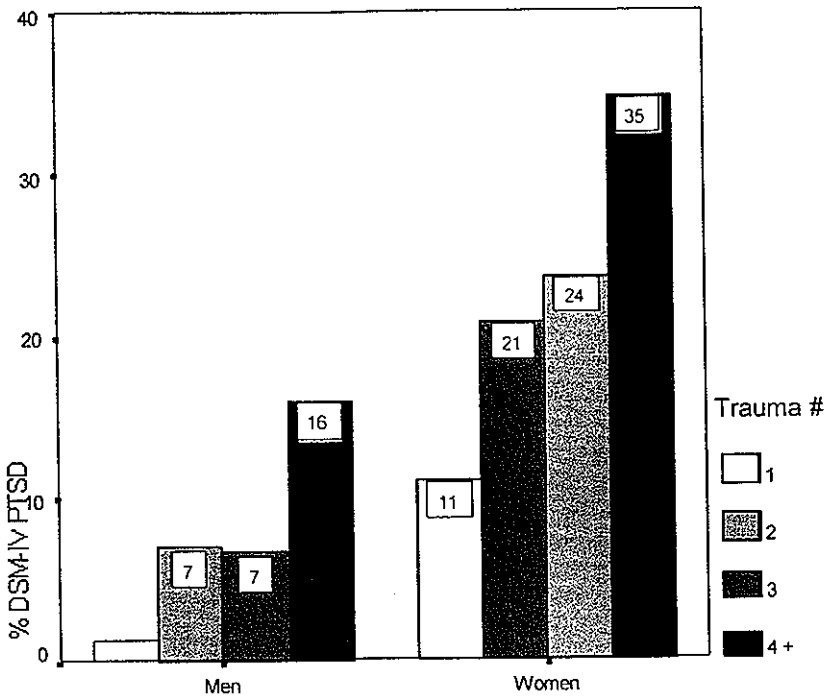

Figure 1. Prevalence of PTSD for men and women by number of traumas.

neither medical nor other professional care. Cases were most likely to have received care in the event of a life-threatening accident (61%), but only 40% of persons with PTSD from sexual violence, 45% of persons with PTSD from nonsexual violence, and 43% of persons with PTSD from traumatic bereavement received any medical or professional care. Thus PTSD largely went untreated in the Mexican population.

Across cities, proportions of those receiving care varied from a low of 34% in Oaxaca to a high of 56% in Mérida; standard errors are large at this midrange of frequencies, so the difference was not significant, $\chi^2(3, N = 282) = 6.94, p = .07$. Proportions of those receiving care did not vary with education, SES, or gender. The proportions of female cases (45%) and male cases (34%) who received medical or professional care differed marginally, $\chi^2(1, N = 281) = 3.56, p = .06$.

Discussion

Overall, as anticipated, the results from this investigation in Mexico were more similar than not to results from previous investigations in North America. In light of past research, it was not surprising to find that most Mexicans had experienced trauma over the course of their lives and that most, in fact, had been multiply traumatized. However, there was no evidence suggesting that Mexicans are more highly exposed than are other North Americans. At 76%, this sample's overall rate of exposure to potentially traumatic events was solidly in the range of previous reports, including many studies that, like ours, focused on urban experience. Although above the 69% prevalence rate observed in four southeastern U.S. cities by Norris (1992), the rate in Mexico was virtually identical to that observed in Winnipeg by Stein et al. (1997) and well below the 90% rate observed in Detroit by Breslau, Kessler, Chilcoat, et al. (1998). Not only did we fail to observe differences in exposure rates between Mexican and U.S. samples, but also there were no consistent differences within this sample across cities or groups defined by SES (education or wealth). Apparently, conclusions regarding the high prevalence of trauma are cross-culturally applicable. It is important for activists, professionals, and policymakers to recognize that certain forms of trauma are unacceptably common among rich and poor alike. Clearly, greater attention to the public's health and safety is required.

We hypothesized that the prevalence of PTSD would be substantial in Mexico, at least as high as, and probably higher than, rates found elsewhere in North America. This was, in fact, the case. Our study suggests that one out of every nine residents of urban Mexico (11.2%) has had full PTSD. This *DSM–IV* rate was almost 50% greater than the national U.S. rate (7.8%), which was estimated on the basis of less restrictive *DSM–III–R* criteria (Kessler et al., 1995). If we exclude Criterion F from our calculations, the Mexican rate (13.3%) is 70% higher than the U.S. rate. Supplementary analyses conducted with age-defined samples indicated that the differences could not be explained by the age-related eligibility requirements of the two surveys. The Winnipeg survey (Stein et al., 1997) did not provide lifetime rates of PTSD. Although Breslau, Kessler, Chilcoat, et al. (1998) focused on conditional risk, multiplication of their sample's rate of exposure (.896) and rate of PTSD given exposure (.092) indicates that 8.2% of their sample met *DSM–IV* criteria for PTSD; thus the rate we obtained for urban Mexican rate was approximately 37% higher than the rate found for the Detroit area.

Almost two out of every three cases of PTSD became chronic, lasting at least 1 year. This proportion is roughly the same as has

been found in the United States (e.g., Breslau & Davis, 1992), but the resulting prevalence of chronic PTSD is greater: 7% in Mexico overall. Kessler et al. (1995) showed that the time to remission was reduced among persons who received treatment for the disorder compared with persons who did not. Very few Mexicans received psychological help, and most did not even receive medical help, which may have contributed to the chronicity of symptoms observed there.

Our study lends support to Breslau, Kessler, Chilcoat, et al.'s (1998) conclusions regarding the importance of bereavement in the overall epidemiology of trauma. On the basis of our results, we can estimate that 3.4% of the Mexican adult population has had PTSD specifically related to bereavement. This is especially striking when it is remembered that our definition of traumatic bereavement was narrower than that of Breslau, Kessler, Chilcoat, et al., including only deaths due to unnatural causes, rather than including all sudden and unexpected deaths.

In accord with many other studies (e.g., Kessler et al., 1995; Norris, 1992; Resnick et al., 1993), violence was associated with the highest conditional risk for PTSD, and when both sexual and nonsexual violence were considered together, survivors of violence composed the largest subset of PTSD cases. On the basis of these results, we estimated that more than 5% of the Mexican adult population has had PTSD as a direct result of violence. It is quite possible that the full impact of violence is even greater than these figures suggest because it may exacerbate the impact of other traumatic events (Breslau et al., 1999; Briere & Elliott, 2000). The high rates of PTSD for reasons other than violence in our samples of violence survivors could be interpreted in this way.

Multiple exposures to trauma are a source of great difficulty in PTSD research, as it is close to impossible for large-scale epidemiologic investigations of multiple constructs to assess PTSD for each event. The fact that we assessed PTSD only for a single "worst" event constituted a flaw in our methodology, even though it is a common one. This approach exacerbates the tendency in epidemiologic research to lose sight of the complexity of individual life stories. As shown here, only a minority (30%) of trauma victims had a single exposure; more than one fourth (27%) were repeatedly traumatized, having four or more exposures. The number of traumas was highly predictive of both PTSD and chronic PTSD. Whereas only 7% of adults with a single exposure met PTSD criteria, 23% of adults with four or more exposures did so. To illustrate this issue more specifically, consider the 63 women in our sample who experienced a sexual assault. Of these women, only 2 had *only* this event. Of the remaining 61 women, 32 selected this event as their most stressful, but almost as many (29) did not. How could that be, given that, normatively, sexual assault may be the single most pathogenic form of trauma? The answer lies in the extraordinary trauma histories of these 29 women: 19 (66%) witnessed someone being injured or killed, 19 (66%) had been physically assaulted, 16 had been molested (55%, half of these as children), 9 (31%) had been threatened with a weapon, 7 (24%) lost a loved one to homicide, and 3 (10%) lost a loved one to suicide. Altogether, they experienced an average of five potentially traumatic events, and almost one half (n = 13, 45%) met PTSD criteria for one of these other events. Although the numbers are smaller, the same point could be illustrated with men. Of the 10 male sexual assault victims, only 2 selected this as their worst experience, of whom 1 met PTSD criteria. However, 4 of the other 8 survivors (50%) met PTSD criteria for some other event, so that altogether, 5 (50%) of these survivors had PTSD.

Our assertion that the impoverished economic conditions of Mexico would account for a higher overall prevalence of PTSD was strengthened by showing that PTSD rates varied in predictable ways across cities and SES groups. Oaxaca was the poorest city overall. Rates of PTSD and chronic PTSD were approximately twice as high in Oaxaca (17% and 12%, respectively) as in the other cities (9%–10% and 5%–6%, respectively). Likewise, rates were approximately twice as high in the lowest quartile of material wealth (17% PTSD, 11% chronic PTSD) as in the highest quartile (9% PTSD, 5% chronic PTSD) and three times as high among respondents with less than 6 years of education (19% PTSD, 11% chronic PTSD) as among college-educated respondents (6% PTSD, 4% chronic PTSD). The conditional risk for PTSD given any exposure and minimal education was a striking 26%.

The final hypothesis in our research was that gender differences in the prevalence and impact of trauma would be large. In accord with previous research, men were more frequently exposed to trauma (with the notable exception of sexual violence) than were women. Men's rates were strikingly high for witnessing someone being injured or killed (46%), surviving a life-threatening accident (45%), losing a loved one to homicide, suicide, or accident (41%), and experiencing violence (43%). Although men do not appear to be at high risk for PTSD as a result of these events, they are nonetheless at risk for physical injury and impairment (Hijar et al., 1992) and even death (Hijar, 1990; López, Hijar, Rascón, & Blanco, 1996). They may also be at risk for other adverse psychological outcomes, such as substance abuse, that were not considered in our research.

Women's lives, though less dangerous than men's, were far from safe, and women were as likely as men to experience events perceived as involving terror, horror, or helplessness (see Table 2). The impact of trauma was greater for women, and they were twice as likely as men to meet all criteria for PTSD (15% vs. 7%). Mexican women's rates (17% if Criterion F is ignored) were also substantially higher than were U.S. women's rates (10% on the basis of *DSM–III–R*). However, the gender odds ratio was comparable, as women in the NCS were also approximately twice as likely as men were to meet PTSD criteria (10% vs. 5%). The greatest concern must go to certain subgroups of women who were at exceeding high risk: Oaxacan women, of whom 20% had PTSD; minimally educated women, of whom 22% had PTSD; repeatedly traumatized women, of whom 35% had PTSD; and sexually violated women, of whom 42% had PTSD. Like most previous epidemiologic studies that had primarily a descriptive purpose, our study sheds little light on the causes of women's greater risk. Neither the nature of the index trauma nor the presence of traumas other than the index trauma can explain this result. Poverty exacerbated women's conditional risk, but typically the effects of gender remained strong when SES was controlled. That the difference between men and women begins when cognitions of terror and helplessness (Criterion A2) come in to play provides some support for sociocultural explanations (see also Norris et al., 2002), but no data were collected in our study that can either support or refute biological explanations.

Several shortcomings of our study must be acknowledged. We lacked the capacity to draw a truly nationally representative sample or to include small villages or indigenous communities in the

design. For reasons we were unable to explain, women were overrepresented in the psychological-interview sample, and the male sample was biased in the direction of an overinclusion of better educated and older men, although the magnitude of this bias was quite small. Our procedures for assessing conditional risk were not state of the art in light of Breslau, Kessler, Chilcoat, et al.'s (1998) impressive work in assessing PTSD for randomly selected traumatic events. The Spanish version of the CIDI's Module K has not been clinically validated, although some data do support the validity of the English version from which it was translated (Breslau, Kessler, & Peterson, 1998), and it correlates highly with other PTSD measures that have been used in Mexico (Norris, Perilla, & Murphy, 2001). The CIDI is also limited by the retrospective design of the interview protocol. How accurately events and symptoms are remembered from the distant past is not really known, as there are no objective standards against which such reports can be validated.

Although the study has its limitations, we believe it has a number of strengths. We did a considerable amount of pilot work in Mexico before beginning this study to ascertain that PTSD was a meaningful construct to study in this culture. We selected the CIDI on the advice of highly regarded psychiatric epidemiologists (R. Kessler, personal communication, December 23, 1997), and it has excellent face validity. Its questions are worded simply and follow a clear, logical structure based on the *DSM–IV*. The Spanish version of the CIDI was translated carefully by a team of bilingual experts. Finally, our indigenous interviewers and Spanish-speaking colleagues were well trained in the CIDI's administration by a specialist recommended by WHO. All in all, the CIDI is generally regarded as the best option available today for international epidemiologic research on mental health. Another strength of our study is that there are still relatively few studies of trauma and PTSD that are based on the criteria (including A2 and F) that went into effect with *DSM–IV*. The size of the sample was another strength. A large sample and the power it affords are essential for determining the relative severity of different types and contexts of trauma as well as the differential vulnerability of subgroups of the population. In addition, the study included random representative samples of four cities in Mexico, chosen to provide regional and economic diversity. Our response rates were excellent, for which we owe much to the dedication of interviewers who made repeated visits to the field, in most cases without benefit of phones or even automobiles. To our knowledge, our study is the first epidemiologic study of trauma and PTSD in Mexico. As such, the study's greatest strength lies in its ability to provide normative data from which we can extrapolate to the population.

Clearly our findings have value for Mexico, as the need for such data has been noted (Levav, 1991). It will be important to establish collaborative partnerships with primary care physicians, psychologists, psychiatrists, other healers, and policymakers to spread awareness of the frequency and impact of trauma. We believe our study is also of value for practitioners in the United States. Mexicans and Mexican Americans compose the largest ethnic minority group in the United States (Vega et al., 1998), and it is expected to continue to grow. It is vital that we identify the mental health issues that immigrants bring with them if we are to serve them well. Finally, we believe our study has scientific value. In a global society, we need an increased understanding of mental health internationally. It is crucial that we build a research base that is composed of various peoples around the world.

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